AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method of making a ceramic tube of wall thickness T_{tube} with electrodes thereon suitable as a tubular reaction chamber for a fuel cell, the method comprising:

wrapping a first electrode material around a mandrel so as to form a first tubular surface;

wrapping a green ceramic material, having a thickness T_{wrap} that is thinner than the thickness T_{tube} of the ceramic tube, around the mandrel over the first tubular surface a multiple n times so as to form a second tubular surface;

wrapping a second electrode material around the mandrel over the second tubular surface so as to form a third tubular surface, wherein the first electrode material, the green ceramic material and the second electrode material are each selected from sheet material or tape material;

laminating together the wrap of the first electrode material, the n wraps of the green ceramic material and the wrap of the second electrode material under pressure while still wrapped about the mandrel; and, in either sequence, both

separating the mandrel from the laminated wraps; and

sintering the ~~separated~~ laminated wraps to produce a laminated ceramic tube of wall thickness $n \times T_{wrap} = T_{tube}$ having an inner first electrode and an outer second electrode.

2. (Original) The method according to claim 1 wherein the wrapping of the green ceramic material is to a cumulative wall thickness T_{tube} less than 1 millimeter.

3. (Original) The method according to claim 2 wherein the wrapping of the green ceramic material is to a cumulative wall thickness T_{tube} less than 100 micrometers.

4. (Original) The method according to claim 1 wherein the wrapped green ceramic material is tape material, and is wound around the mandrel in a spiral pattern.

5. (Original) The method according to claim 4 wherein the wrapped green ceramic tape material is wound around the mandrel in spirals of complimentary right-hand and left-hand twist one wound layer to the next.

6. (Original) The method according to claim 1 wherein at least one of the first electrode material or the second electrode material is metal.

7. (Original) The method according to claim 1 wherein at least one of the first electrode material or the second electrode material is an electronically conductive green ceramic.

8. (Original) The method according to claim 7 wherein the green ceramic material and the electronically conductive green ceramic contain a cross-linkable organic binder, and wherein the laminating together under pressure comprises laminating in a hydrostatic pressure laminator at a pressure sufficient to cross-link the organic binder within the wraps and form linked polymer molecular chains between wraps.

9. (Original) The method according to claim 1 wherein at least one of the first electrode material or the second electrode material is a composite of a green ceramic and a conductive metal in an amount sufficient to render the composite conductive.

10. (Original) The method according to claim 9 wherein the composite comprises a matrix of the green ceramic, and particles of the conductive metal are dispersed in the matrix, and wherein the conductive metal particles comprise about 40-90% of the composite.

11. (Original) The method according to claim 9 wherein the green ceramic material and the composite of the green ceramic contain a cross-linkable organic binder, and wherein the laminating together under pressure comprises laminating in a hydrostatic pressure laminator at a pressure sufficient to cross-link the organic binder within the wraps and form linked polymer molecular chains between wraps.

12. (Original) The method according to claim 1 wherein the green ceramic material is sheet material, and is wound radially around the mandrel.

13. (Original) The method according to claim 1 further comprising:

further wrapping green ceramic material around the mandrel over at least one of the second or the third tubular surface at end regions of the tube only, and not at a central region of the tube;

wherein the central region of the tube is thinner, being of thickness T_{tube}, then are the end regions of the tube where exist the further wraps of the ceramic material.

14. (Original) The method according to claim 1 that, before the wrapping, further comprises:

placing a releasing agent on the surface of the mandrel;

and wherein the separating of the mandrel from the laminated wraps comprises:

activating the releasing agent on the surface of the mandrel; and

withdrawing the mandrel from the laminated wraps.

15. (Original) The method according to claim 14 wherein the placing of the releasing agent on the surface of the mandrel comprises applying wax to the surface of the mandrel, and wherein the activating of the releasing agent comprises melting the wax.

16. (Original) The method according to claim 1 further comprising, before wrapping the first electrode material, wrapping a sacrificial organic material around the mandrel to a desired thickness, wherein the organic material is selected from sheet material or tape material, and wherein the organic material is burned away during the sintering.

17. (Original) The method according to claim 16 further comprising, before laminating, wrapping an additional sacrificial organic material over the third tubular surface to a desired additional thickness, wherein the additional organic material is selected from sheet material or tape material, and wherein the additional organic material is burned away during the sintering.

18. (Currently Amended) A method of making a ceramic tube of wall thickness T_{tube} with electrodes thereon suitable as a tubular reaction chamber for a fuel cell, the method comprising:

providing a first electrode tube <u>in solid form and of sufficient structural integrity to serve as a supporting structure</u>;

wrapping a green ceramic material, having a thickness T_{wrap} that is thinner than the thickness T_{tube} of the ceramic tube, around the first electrode tube a multiple n times, wherein the green ceramic material is selected from sheet material or tape material;

laminating together the n wraps of the green ceramic material under pressure while wrapped about the first electrode tube;

sintering the laminated wraps to produce a laminated ceramic tube of wall thickness n x $T_{wrap} = T_{tube}$ ~~having~~ <u>and</u> an inner first electrode <u>comprising the first electrode tube, wherein the first electrode tube serves as the supporting structure for the green ceramic material during wrapping, laminating and sintering and serves as the inner first electrode in the tubular reaction chamber</u>; and

providing an outer second electrode by one of the following:

a) before laminating, wrapping a second electrode material around the n wraps of the green ceramic material, wherein the second electrode material is selected from sheet material or

tape material, and laminating the second electrode material together with laminating the n wraps of the green ceramic material;

b) before sintering, wrapping a second electrode material around the laminated wraps, wherein the second electrode material is selected from sheet material or tape material; and

c) after sintering, printing a second electrode material onto the ceramic tube.

19. (Original) The method according to claim 18 wherein the wrapping of the green ceramic material is to a cumulative wall thickness T_{tube} less than 1 millimeter.

20. (Original) The method according to claim 19 wherein the wrapping of the green ceramic material is to a cumulative wall thickness T_{tube} less than 100 micrometers.

21. (Original) The method according to claim 18 wherein the wrapped green ceramic material is tape material, and is wound around the first electrode tube in a spiral pattern.

22. (Original) The method according to claim 21 wherein the wrapped green ceramic tape material is wound around the first electrode tube in spirals of complimentary right-hand and left-hand twist one wound layer to the next.

23. (Original) The method according to claim 18 wherein the second electrode material is metal.

24. (Original) The method according to claim 18 wherein the outer second electrode is provided by one of a) or b), and the second electrode material is an electronically conductive green ceramic.

25. (Original) The method according to claim 24 wherein the outer second electrode is provided by a) and the green ceramic material and the electronically conductive green ceramic contain a cross-linkable organic binder, and wherein the laminating together under pressure comprises laminating in a hydrostatic pressure laminator at a pressure sufficient to cross-link the organic binder within the wraps and form linked polymer molecular chains between wraps.

26. (Currently Amended) The method according to claim [[1]] 18 wherein the outer second electrode is provided by one of a) or b), and the second electrode material is a composite of a green ceramic and a conductive metal in an amount sufficient to render the composite conductive.

27. (Original) The method according to claim 26 wherein the composite comprises a matrix of the green ceramic, and particles of the conductive metal are dispersed in the matrix, and wherein the conductive metal particles comprise about 40-90% of the composite.

28. (Original) The method according to claim 26 wherein the outer second electrode is provided by a) and the green ceramic material and the composite of the green ceramic contain a cross-linkable organic binder, and wherein the laminating together under pressure comprises laminating in a hydrostatic pressure laminator at a pressure sufficient to cross-link the organic binder within the wraps and form linked polymer molecular chains between wraps.

29. (Original) The method according to claim 18 wherein the green ceramic material is sheet material, and is wound radially around the first electrode tube.

30. (Original) The method according to claim 18 further comprising:

further wrapping green ceramic material around the first electrode tube at end regions of the first electrode tube only, and not at a central region of the first electrode tube;

wherein the central region of the laminated ceramic tube is thinner, being of thickness T_{tube}, then are the end regions of the laminated ceramic tube where exist the further wraps of the ceramic material.

31. (Original) A method of making a ceramic tube of wall thickness T_{tube} comprising:

wrapping a sacrificial organic material around a mandrel to a desired thickness;

wrapping a green ceramic material, having a thickness T_{wrap} that is thinner than the thickness T_{tube} of the ceramic tube, around the mandrel over the organic material a multiple n times, wherein the organic material and the green ceramic material are each selected from sheet material or tape material;

laminating together the n wraps of the green ceramic material under pressure while still wrapped about the mandrel; and, in either sequence, both

separating the mandrel from the laminated wraps; and

sintering the separated laminated wraps to burn away the organic material and to produce a laminated ceramic tube of wall thickness $n \times T_{wrap} = T_{tube}$.

32. (Original) The method according to claim 31 further comprising, before separating and sintering, wrapping an additional sacrificial organic material over the green ceramic material to a desired additional thickness, wherein the additional organic material is selected from sheet material or tape material, and wherein the additional organic material is burned away during the sintering.

33. (Original) The method according to claim 31 further comprising, after sintering, applying a first electrode material to an inner wall of the ceramic tube and applying a second electrode material to an outer wall of the ceramic tube to produce a tubular reaction chamber for a fuel cell.

34. (Original) The method according to claim 31 wherein the wrapping of the green ceramic material is to a cumulative wall thickness T_{tube} less than 1 millimeter.

35. (Original) The method according to claim 34 wherein the wrapping of the green ceramic material is to a cumulative wall thickness T_{tube} less than 100 micrometers.

36. (Original) The method according to claim 31 wherein the wrapped green ceramic material is tape material, and is wound around the mandrel in a spiral pattern.

37. (Original) The method according to claim 36 wherein the wrapped green ceramic tape material is wound around the mandrel in spirals of complimentary right-hand and left-hand twist one wound layer to the next.

38. (Original) The method according to claim 31 wherein the green ceramic material is sheet material, and is wound radially around the mandrel.

39. (Original) The method according to claim 31 further comprising:

before laminating, further wrapping green ceramic material around the mandrel over end regions of the tube only, and not at a central region of the tube;

wherein the central region of the tube is thinner, being of thickness T_{tube}, then are the end regions of the tube where exist the further wraps of the ceramic material.

40. (Original) The method according to claim 31 that, before the wrapping, further comprises:

placing a releasing agent on the surface of the mandrel;

and wherein the separating of the mandrel from the laminated wraps comprises:

activating the releasing agent on the surface of the mandrel; and

withdrawing the mandrel from the laminated wraps.

41. (Original) The method according to claim 40 wherein the placing of the releasing agent on the surface of the mandrel comprises applying wax to the surface of the mandrel, and wherein the activating of the releasing agent comprises melting the wax.

42. (Original) The method according to claim 31 wherein the organic material comprises a polymer film.

43. (Original) The method according to claim 31 wherein the organic material comprises a polymer film matrix and a corn starch particulate filler.